

NOTES ON POPULATION

[^{See}
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The causes which result in a certain density of population obtaining at a certain time differ from each other in regard to the rapidity of their action, some acting quickly, some at a moderate pace, and some slowly.

It is legitimate to consider these three groups of causes separately, together with the nature of the equilibrium which each group of causes would establish if acting alone. We may call these the short period of temporary equilibrium, the intermediate equilibrium, and the ultimate equilibrium; even though the ultimate equilibrium may itself be subject to change.

As to the position of the temporary equilibrium, human fecundity is certainly sufficiently great always to make a rapid increase of the population possible; that is a far more rapid increase than is in fact ever observed. This rapidly acting cause of increase must, therefore, to a large extent be balanced by causes acting in the opposite direction with nearly equal rapidity; these being infanticide, abortion, the use of contraceptives, abstinence or celibacy, postponement of marriage, disease and death. Where a stationary population exists, there the number of married couples will be approximately the same in any two succeeding generations;

from which it follows that in these circumstances the average number of offspring who become parents, or the average size of the fertile family, must be exactly two, no more and no less. Since, as we have seen, natural human fecundity is always largely balanced by the above mentioned opposing causes, it follows that the average size of the fertile family never exceeds two by more than a small amount. In England it is now about 2.7. These checks on population are, therefore, always being brought into effective action to a marked extent in order to bring about the temporary equilibrium between these rapidly acting forces. What is it which does bring these forces into action to the amount necessary to produce the observed results?

It has been suggested that the position of equilibrium is largely due to a conscious or unconscious desire to obtain a population at the optimum density from the economic point of view; or a population which would result in the highest possible level of real wages being reached. When considering only this temporary position of equilibrium, we see that each infant added to the population immediately diminishes the average capital and the average amount of goods per head which are available; for at first the child produces nothing. Under all conditions this must inevitably be an economically disadvantageous result as

far as immediate results are concerned. The current generation would always benefit economically at first by the introduction of some check on the birth rate. It appears to me on this account alone, therefore, that a desire to attain the optimum population cannot always be an efficient agency in regulating the population; for when the population is too small the optimum can only be reached by the removal of checks which are in themselves immediately beneficial. To assume that the desire to attain the optimum population is often a main regulating agency is equivalent to assuming that the population is often above the optimum. It is true that as the child grows up, he begins to produce goods and his presence may then increase real wages. But are even civilized communities influenced by such a problematic forecast? It seems to me to be a far too distant and doubtful consideration to be effective. This question is, however, rather one concerning the intermediate position of equilibrium.

The temporary equilibrium is, I hold, produced in so far as it is consciously produced; by the hard lessons which have resulted in the past from too great numbers; and in so far as it is unconsciously produced by the increase of mortality thus produced. No one likes infanticide, abortion or celibacy, or but few do; and it needs a sharp lesson to

enforce their adoption. To prove that these practices have become traditional only indicates that the disadvantages were felt long ago, and were sufficient to produce enduring traditional results. If this be so, it seems that numbers will always increase until enough pain has been inflicted in order to bring the checks resulting from conscious actions into sufficient operation to maintain, with the aid of a heightened death rate, the average fertile family at only a little above two in number. This is the way in which natural fecundity is controlled, a force which takes no conscious account of immediate consequences. And from this I judge that population is normally above the optimum. This is, I admit, a questionable inference thus far; for it depends on the belief that fecundity is normally far too great for our present needs.

The belief that the temporary equilibrium is only brought about by sharp lessons was, I think, the main underlying thought in the mind of Malthus; and if so, to impress it on the world was a great work. He blundered, as all great pioneers have blundered; but his mistakes have often been exaggerated. We may still agree with Malthus in believing that our country "with a proper direction of the national industry, might, in the course of some centuries, contain two or three times its present population, and yet every

man in the kingdom be much better fed and clothed than he is at present." (Malthus Vol. II Chap. IV P.174)

Do not we still believe that "the silent though certain destruction of life in large towns and manufactories, and the close habitations and insufficient food of many of the poor, prevent the population from outrunning the means of subsistence;" (M. I XIII P.311.312.) or, at all events, if these causes were not sufficiently operative, others would have to be brought into play? And Malthus saw clearly that other forces, such as the absence of house accommodation, were operative in checking the population.

As to the final words with which his Book II closes, namely that as to moral restraint, in so far as it implies "a delay in the marriage union from prudential considerations, without reference to consequences, it may be considered in this light as the most powerful of the checks which in Modern Europe keeps down the population to the level of the means of subsistence," here no doubt we should wish to alter the three last words and substitute for them "existing standard of living." We can all yet learn much from Malthus; concerning the forces creating this temporary equilibrium, which are from the point of view of social effects, far the most important of all the forces regulating the density of the population.

Passing on now to the forces of medium rapidity which create the position of intermediate equilibrium, or the equilibrium which would be established, as it were, on the top of the temporary equilibrium if no still more slowly acting forces had to be taken into account; here we have to deal with the problem of increasing and diminishing returns. As already remarked, when a child grows up, the additional labour then becoming available will add to the production of goods. Will the additional human beings added to the population in any year tend to cause average real wages to rise or to fall? This is the problem from our point of view. Now it is too often forgotten in this connection that as society is now constituted a very large amount of capital is absorbed in the bringing up of children; that is during the first 14 to 24 years of their lives. This capital may amount to from £500 to £1500; and this means that until an additional human being has begun to earn from 10/- to 30/- a week (or cause others to earn this additional amount) his presence must be regarded as a loss to the community. This is, indeed, merely setting forth in detail what has already been stated, namely that an increase in numbers is always immediately harmful. In time the new comer will create a proportionate part of the whole capital; and,

when looking to the intermediate position of equilibrium, it may be right to consider the time when this normal additional capital will have been created; provided this immediate loss is not forgotten.

What we want to know is whether, when the additional capital has been created, the population will be nearer or further from the optimum. What will be the effect of this additional dose of capital and labour, to use the usual economic phrase, when put into use on the land and in production generally? The additional production thus ~~caused~~ may make production generally less costly by increasing the output arising from a given amount of capital, by lowering the average cost of transport, and in other ways. We thus see that an increase in numbers may increase real wages and when this is the case obviously such an increase in numbers is beneficial. But it must never be assumed that because numbers are increasing at the same time that real wages are rising, it follows that the rise in wages is due to the increase in numbers; for real wages ^{might} have risen even more quickly if numbers had not increased. An increase in real wages may be solely due to improved methods of production; and, it is to be noted, that such improvements may be very slow in producing their full effects. An increase in real wages is, therefore,

quite consistent with the population moving further and further away from the optimum density. How then are we to tell whether the existing density of the population is near the optimum? I can only say frankly that I don't know; and such being the case I do not see how the desire to reach the optimum can have been a powerful regulating factor in regard to population.

If the civilised human being does not trouble his head about the optimum population in the future, yet he certainly does consider how an increase in the numbers of his own family would affect the fortunes of that family.

Greater forethought in this respect, an increased knowledge of the use of contraceptives and a decrease in infantile mortality, these are the forces which all acting together are now keeping down the birth rate in certain classes and are helping to produce the existing density of the population. Looking to these forces alone, there seems no reason why they should not produce a population of a density considerably below the optimum where human beings are much actuated by prudential considerations.

Lastly we come to the long period equilibrium, and here the only additional factor to be considered is human fecundity, or the average number of births where there is no restriction on fertility. Now the fecundity of

individual organisms certainly varies from innate causes; and from this it follows that, in a state of nature, the most fecund individuals will prevail over the less fecund in populating the earth. On this account alone, natural fecundity would tend ever to increase; whereas we know that this is not the case. How then has the normal position of fecundity been created? An increase in the numbers of a family increases the probability of the death of all the members of that family by decreasing the amount of parental care bestowed on each offspring separately. When the numbers of the family are small, the additional risk to all due to the additional offspring will be small. The risk will increase with each addition to the family so that, at a certain average size of the family, any addition will begin to cause an actual reduction in the size of the fertile family, that is of the numbers who grow up themselves to become parents. The maximum fertile family is that which will tend to prevail in the struggle for existence, and natural selection will cause fecundity to increase up to but not beyond the point at which it will produce the maximum fertile family.

It may be noted, perhaps, that natural fecundity will tend to rise a little above this level for the following reason. Deaths in a family will tend to weed out its weakest

members; and for this reason a slightly smaller fertile family, which has been weeded out of a larger number of original births, may prevail over a slightly larger fertile family, resulting from selections from a smaller number of original births. Selection even if cruel, will have some beneficial effects.

No doubt the over population of a tribe or pack may be harmful to all its members, and may injure it in its competition with other tribes or packs. Here again it must not be forgotten that the selection due to over population will always be in some degree beneficial when it does not lead to extinction. The point to note here is, however, that the causes of death which effect all alike in a tribe will not tend to prevent the more naturally fecund individuals from prevailing over the less naturally fecund in peopling the land. The selection as between tribes may destroy whole tribes; but it will not prevent an internal tendency for fecundity to increase up to the limit at which the fertile family will be at the maximum. It will be almost exclusively the deaths from want of parental care which natural selection will take into account when regulating fecundity.

To establish such a theory we want to look to test cases; and no better case is known to me than that of the cuckoo. If it were inter tribal selection which were effective, in checking fecundity, the cuckoo would be no more fecund than its cousin the night-jar. But by delegating its parental care amongst many foster parents, the cuckoo increases the amount of parental care available, and in consequence natural selection has caused it to be far more fecund than other similar birds with more respectable habits. Again the fish that take care of their young are far less fecund than the ordinary fish which has no parental cares. Vegetables have an enormous fecundity because they take no thought as to the next generation.

Granted that this is the way in which natural selection has acted, it follows that in primitive times, fecundity was not so regulated as to produce the density of population best calculated to ensure survival of the adult human being; for selection looked almost exclusively to the child in this respect. This theory is therefore quite consistent with many individuals perishing from want of food. In modern times we are, however, mainly concerned with what Malthus described as the silent distinction of life; for when a child in ill health would survive if better nourished or better cared for, we ascribe its death to

disease and not to want of food or care. The fecundity of man is now probably much the same as it was in bygone primitive days; and, as infantile mortality has been greatly lessened, fecundity is now certainly greatly in excess of what is desirable in regard to immediate effects. We thus conclude that amongst the thoughtless and imprudent, where a severe lesson is needed to produce any conscious limitation of the family, the forces are such as to create a population considerably above the optimum. We have seen that where forethought is exercised to a considerable extent, there the forces may be tending to keep the population below the optimum. Must we not conclude that now the improvident prevail over the provident, and that population is likely to be considerably above the optimum?

This conclusion also seems to me probable when we look at the matter in another way. There are large areas now under cultivation which are below the average in fertility, and also many industries which on account of local conditions are below the average in productivity. Let it be imagined that these relatively infertile areas and unproductive industries were all uncultivated or swept away, and that their populations disappeared. Would not an equilibrium of trade often thus be obtainable?

And if it were obtained, would not the level of real wages inevitably be raised? Looking at the whole world thus, it seems to me that the population is certainly so much above the theoretical optimum as to make it hopeless to attempt to recede to that level. All we can conclude is that an increase of numbers will almost certainly be harmful and that a decrease in numbers may be economically advantageous if brought about in the right way. Here again let it be remembered that new inventions facilitating production might allow an enormous increase of population to take place, even with an increase of real wages. But unless such inventions levelled the productivity of all the inferior areas and industries up to the level of the best, which they could not possibly do, it yet would be true that the abandonment of these less fertile fields for human effort would often be economically beneficial; and that the population would continue to be above the optimum level.
